BACKGROUND PAPER ON WHEELCHAIR USERS

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TABLE OF CONTENTS

		PAGE
1.	Purpose of Paper	1
2.	Statement of the Problem	1
	2.1 Operational Definitions	1
	2.2 Multiplicity of Agencies Involved with the Handicapped	1
	2.3 Limited Statistical Base	5
3.	Types of Home Adaptations Required	8
	3.1 Categories of Home Adaptations	8
	3.2 Average Costs of Home Adaptations	9
4.	Discussion of Alternative Approaches	11
	4.1 Limitations by Tenure	11
	4.2 Limitations by Age	11
	4.3 Limitations by Income	11
	4.4 Grant Versus Loan	12
5.	Financial Implications of Alternative Approaches	15
6.	Program Alternatives	16
	APPRENDIX	19

LIST OF TABLES

		PAGE
Table 1:	Agencies currently Assisting Wheelchair Users	2
Table 2:	Estimate of non-institutionalized Wheelchair Users, by Age, by Tenure	7
Table 3:	Range of Modification Costs, by Categories	10
Table 4:	Percentage Distribution of Families and Unattached Individuals by Income Group, 1972-75	13
Table 5:	Discussion of Alternate Approaches of Funding	14
Table 6:	Budget Implications for Alternative Levels of Funding Assistance	15
Table 7:	Alternative Approaches to Program Definition	17
Appendix - Table A:	A Comparison of Wheelchair Utilization rates	19
Table B:	A Comparison of Wheelchair Users in the City of Edmonton, by Age, by type of dwelling	20

BACKGROUND PAPER ON WHEELCHAIR USERS

1. Purpose of Paper

Some handicapped persons have special housing needs resulting from the limitations of their handicap. The purpose of the background paper is to provide a description of the current statistical base available for use in assessing such needs. As well, a review of existing agencies and programs available to handicapped persons was undertaken to determine areas where possible duplication might occur.

2. Statement of the Problem

2.1 Operational Definitions

After meetings with various divisions of the Department of Social Services and Community Health, the City of Edmonton, Disabled Transportation System personnel and various other groups associated with the handicapped, it became clear that an operational definition of "handicapped" was not readily available. The Department of Social Services and Community Health appear to be active in developing such a definition. Because of this, Alberta Housing and Public Works chose to limit the research activity to deal with wheelchair users. This approach seemed more feasible from a housing department's perspective when identifying eligibility criteria as well as the assumption that specialized needs would probably be most evident where wheelchairs were required.

2.2 Multiplicity of Agencies Involved with the Handicapped

A variety of agencies are involved with handicapped persons, each with its own assistance mechanisms. Table 1 summarizes the activities of agencies assisting wheelchair users.

Table 1: AGENCIES CURRENTLY ASSISTING WHEELCHAIR USERS

Department	Branch	Client Served	Number Assisted	Financial Eligibility	Nature of Assistance Provided
Social Services and Community Health	Public Assistance[1,2]	Families who require social assistance.	Over 6000 persons require social assistance payments because of physical ill health or disability; it is not known the number of wheelchair users. In 1975/76 79 persons received wheelchairs and $47,000 was spent on home repairs.	Require social allowance. Generally for families/ individuals less than 65. Applies to owners and renters, if the landlord agrees.	Will provide wheelchairs, lifts and limited home adaptations to wheelchair users. Social worker can authorize some expenditures; remainder of costs must be authorized in Central Office. Costs can exceed $2000 but each case is handled separately. Detailed information in cares and nature of repairs not available.
	Handicapped Children's Services[1,2]	Children less than 18 not assisted by other programs, e.g. Child Welfare or Social Assistance	Approximately 1650 children are under the program with 900 not institutionalized Approximately 1/9 are in wheelchairs. In 1975/76, 88 wheelchairs were purchased for children (9 under Child Welfare)	The cost-sharing arrangement is negotiated with each family. Generally a 80% government 20% family share.	Generally, home modifications not required until child to big to handle. Modifications totalled $40,000 in 1975-76. Most expenditures are on lifts and ramps. Use benchmarks as maximums.
	Services for the Handicapped[3]	Varied although programs and funding not modifying homes.	deal with agencies serving parapalegics	Not applicable	Grants provided to agencies involved with wheelchair users but would cover administration items, not home adaptations or wheelchairs.
	Extended Health Care Benefits[1]	65+	In Alberta, 135,000 Senior Citizens. In 1975-76 there were 686 new wheelchairs purchased and 209 reloans. In 1976-77 there was 709 new purchases.	All eligible.	Provides wheelchairs, lifts and other needs on a loan basis for as long as person needs one. Does not provide for home modifications

Department	Branch	Client Served	Number Assisted	Financial Eligibility	Nature of Assistance Provided
Workers Compensation Board [1,3]	Vocational Rehabilitation	Persons who are injured on the job.	To date 90 persons in wheelchairs.	No restrictions; in fact, pay pensions.	- Will provide any equipment or modifications needed - Fully comprehensive - Board follows up on individuals overtime - Average cost is $3000 maximum.
Department of Housing & Public Works [1,2]	S.C.H.I.P. Grants	65+	All senior home owners eligible for some assistance.	On GIS 6500) $1000 6500 - 8000 - $750 8000 - 9000 - $500	- Ramps are eligible - other modifications possible within general guidelines - Equipment not included
Motor Vehicle Insurance Claims [1]		Persons involved in accidents where no insurance settlement possible.	8 - 10 - most covered by insurance or are not eligible.	None. Must have Alberta drivers licence.	Up to $45,000 to cover all costs of rehabilitation, over a period of 10 years.
Insurance Settlements [1,3]		Accident Settlements	Not known.		Depends on settlement.
Canadian Parapalegic Association [1,2,3]		All parapalegics especially wheelchair users.	750 - 800 served; 200 on active file	No limit - individual assessment organization funded in part by Social Services. Hired on fee for service basis by Workers Compensation.	Wheelchairs and other equipment can be purchased at discount by all parapalegics. Some equipment available for loan Provides assistance in funding accommodation Fells average cost for modification $3000.
Muscular Dystrophy Association of Canada [2,3]		M.D. patients	100 in Alberta most in wheelchairs	No limit as long as patient cannot get assistance elsewhere.	Provides equipment such as wheelchair lifts. Generally little other assistance.

Department	Branch	Client Served	Number Assisted	Financial Eligibility	Nature of Assistance Provided
Alberta Rehabilitation Council for the Disabled 1,2,3.		All disabled	250 - 300 in wheelchairs served; many others	No limit - some sharing of costs. Organization funded in part by Social Services. Individual assessment based on what the family can afford.	Can help wheelchair users acquire necessary equipment on loan or owner basis Often assist in assessing home modification needs any may provide financial support Major role is trying to co-ordinate funding of all agencies to avoid duplication or gaps
Canadian Foundation of Poliomyelitis and Rehabilitation 1,3		All polio victims	400 in Wheelchairs Generally 30+	No limit - individual assessment based on what the family can afford.	Financial assistance available for many items include wheelchairs, and other equipment, home care, etc. Fairly comprehensive
Multiple Sclerosis Society of Canada 1,2,3.		Those with M.S.		Cannot be able to get assistance elsewhere.	Will purchase wheelchairs Provides counselling and other services, limited modifications.

1. Agencies to be concerned with when setting up an administration system to avoid duplication of service.
2. Agencies to consider as assisting in delivery of program through an administrative arrangement.
3. Agencies that will probably not experience impact in the proposed program.

In general, the assistance is fragmented and for the most part, not comprehensive. Senior Citizens can obtain equipment through Extended Health Care Benefits and can make physical changes to their homes if they are eligible for the Senior Citizen Home Improvement Program. Families with children under 18 can receive equipment and financial assistance for home modification, but generally home modifications are limited. Selected disease specific groups can obtain financial help for equipment or limited modifications or may find assistance through voluntary agencies. Those disabled due to accident may obtain financial assistance through insurance settlements or the Motor Vehicle Insurance Fund. Workers Compensation Board offers a comprehensive program for equipment, adaptations and on-going follow up but this only covers 90 persons. For persons between 18 and 65 years of age the fragmentation of service is most pronounced and any costs of equipment and adapting homes for wheelchair use is largely the responsibility of the individual or his family.

2.3 Limited Statistical Base

Data on handicapped persons in fragmented as well and is due to the difficulties encountered in defining the "disabled". By concentrating on wheelchair users as a target group, some of the definitional problems were reduced; however, the data on the number of wheelchairs in use is also imprecise.

Any attempt at relating the wheelchair user to housing variables such as tenure, type of dwelling and income requires the acceptance of fairly broad assumptions which, in fact, may prove invalid.

Table 2 is the estimate of non-institutionalized wheelchair users, by age, by tenure derived on the basis of the following assumptions:

1. That the use of non-institutional wheelchair user data will be less biased when applying it to the general population due to the concentration of institutionalized accomodation within larger centres.

2. That the wheelchair utilization ratio of non-institutionalized persons derived for the City of Edmonton can be applied to the Alberta population in general. This ratio is 1.5 per thousand population.

3. That the age distribution of the Edmonton non-institutionalized wheelchair population can be applied to the province in general. This breakdown is 40% greater than 65, 50% between 20 and 65 and 10% less than 20.

4. That the owner-renter ratio in Edmonton of this population can be applied to the general Alberta situation. This assumes a 60% owner-40% renter distribution for all age groups.

Table 2 further assumes that the number of non-institutionalized wheelchair users in Alberta is increasing and therefore presents a medium and high estimate of users in increments of 1000 population.

Appendix 1 provides a comparison of Wheelchair Utilization Rates developed in other countries or provinces and further describes the method of arriving at an Alberta estimate. Due to the sources of information it is felt that the low estimate is probably the most realistic at this point of time but that it may be understating the number of wheelchair users in the'below 20' category. Therefore, for estimating purposes for 1978-79, an increment of 1000 was made, thereby rising 4000 as a total wheelchair population not institutionalized.

Table 2:

ESTIMATE OF NON-INSTITUTIONALIZED[1] WHEELCHAIR USERS, BY AGE, BY TENURE

	OWNERS[3]			RENTERS[3]			TOTAL		
By Age[2]	Low	Med	High	Low	Med	High	Low	Med	High
> 65	700	1000	1200	500	600	800	1200	1600	2000
20 - 65	1000	1400	1800	800	1000	1200	1500	2000	2500
< 20	..	..	..	..	..	..	300	400	500
	1700	2400	3000	1300	1600	2000	3000	4000	5000

.. Included in 20 - 65 and assumes seniors living with children and children living with parents follow the tenure distribution of the overall population.

1 Assumes a utilization ratio of 1.5 per thousand population for a population of Alberta of 2 million.

2 Assumes a distribution of wheelchair users of 10% less than 20, 50% between 21 - 64, and 40% greater than 65.

3 Assumes a 60% - 40% owner-renter ratio.

Note: These assumptions are based on information available for the City of Edmonton and are assumed applicable to the general population of Alberta.

3. Types of Home Adaptations Required

All agencies providing home modification assistance were asked the type of adaptations that would be required and the cost of these changes. From these responses plus a review of selected files provided by the Workers' Compensation Board, the following categories and costs are considered to represent a fairly complete range of needs. This does not, then, represent a minimum level of need as each situation will be unique, based on such factors of type of accommodation, dimensions to plan for and the member of the household using the wheelchair.

3.1 Categories of Home Adaptations

There are two major categories of adaptations:

- those permitting travel into and out of the home, and
- those facilitating movement within the home.

3.1.1. Entrance/Egress Adaptations

These adaptations should enable access to the home in relative safety and optimal independence. Such items as ramps, wheelchair lifts, railing and widened exterior doorways are the most common ways of resolving architectural barriers to entrance and egress. In general, one entrance would be considered sufficient.

Other modifications that might be necessary would include the widening of sidewalks, installation of electric sockets for lifts, building wedges at garage doors, sidewalks, etc. or installing sliding doors rather than widening existing doors.

3.1.2. Functional Occupancy Adaptations

Adaptations enabling travel within the home and which permit the meeting of certain vital needs; i.e. personal hygiene, and in some instances, homemaking are typical purposes for interior changes. Such items as widened interior doorways, hinge changes, bathroom devices and plumbing changes such as lowered sinks, raised toilet seats, relocated fixtures, wheel-in showers, lowered counter spaces in the bathroom or kitchen and possibly lowered stove, are included in this category.

Other modifications that may also be necessary in some cases would be stair glides, bumper pads , relocation of laundry equipment and interior lifts.

3.2 Average Costs of Home Adaptations

According to the experience of the Workers Compensation Board and Canadian Parapalegic Association, an average cost per home has been $3,000 with costs ranging to $12,000. The City of Edmonton's survey showed costs ranging between $50 and $5,000 but there was no correlation between the costs and type of modification and year of modification.

Table 3 summarizes the costs of most obvious items. There is considerable variance, especially when structural changes are required. It would also appear that the interior modifications are most subjective to individual needs.

TABLE 3: RANGE OF MODIFICATION COSTS[1], BY CATEGORIES

ENTRANCE/EGRESS		FUNCTIONAL OCCUPANCY	
ITEM	COST RANGE	ITEM	COST
Lifts[2]	$1200 - $1500	Door Widening	$200 - $300
Ramps	400 - 700	Bathroom accessories	100 - 150
Handrails and bars	200 - 300	Bedroom grab bars	50 - 100
Electric Socket Installation	50 - 100	Bathroom Structural or plumbing changes	2000 - 3000
Door Widening	200 - 400	Stair Glides	2000 - 4000
Sidewalk Widening (concrete)	$2000	Interior Lifts	300 - 500
Wedges	$ 40 each	Lowered counters	50 100
Protective breezeways	$ 300		
Average Range:	$1000 - $2000	Average Range:	$100 - $3000

1. Costs of Labour component included.
2. Lifts are considered more versatile and practical than ramps. Lifts can be removed but are considered permanent in nature while the user resides in the home; then it is a simple matter to move it elsewhere.

4. Discussion of Alternative Approaches

4.1. Limitation by Tenure

The Senior Citizen Home Improvement Program limits assistance to home owners. Other agencies offering assistance for home modification will provide assistance to renters if the landlord agrees. If the assumptions used to estimate tenure are correct, 2/3 of the wheelchair users would be included in a program geared towards homeowners. Such a program would be easier to initiate and administer as an extension of the SCHIP framework. On the other hand, the younger wheelchair user looking for housing alternatives outside the immediate family or other institutions would be excluded.

4.2 Limitations by Age

The current repair and health care program available to senior citizen wheelchair users may be considered sufficient reason to restrict the program to those less than 65. It is possible, though, that senior citizens place priority on SCHIP home improvements that are geared to increasing the value of their homes. The home adaptation program is not designed to add any appreciable value. Also, the cost of some adaptations required may be prohibitive when considering the extent of S.C.H.I.P. assistance. Therefore, the need for further adding home improvement assistance to senior citizen home owners does not seem unreasonable.

4.3. Limitations by Income

Most agencies have avoided setting income limits to their assistance programs because they have found that:

- the handicapped individual is often in the low or middle income range.

- the family situation in which there is a handicapped person is often experiencing financial stress due to medical requirements or the added requirements or special needs of the handicapped individual.

- when the physical need for assistance is evident it was not easy to justify an income maximum as a criteria for assistance.

In general, the approach taken by many agencies has been to negotiate a cost-sharing arrangement whereby the individuals or the family can pay for a portion of the costs.

Table 4 shows the distribution of family and non-family income between 1972-75. It is assumed that the income distribution of non-institutionalized wheelchair users will be similar to the average population, although the income levels may be slightly lower. For ease of estimating, the 1975 Alberta distribution is assumed to be representative of the wheelchair population in 1977, which is approximately 10% less than the average.

Any income restriction would reduce the number of eligible persons and families.

4.4 Grant Versus Loan

There are three alternatives to provide funding for such a program which are outlined in Table 5. The grant approach appears to be the most easily mobilized and the method most likely utilized by those in need. Its most serious drawback could be the lack of responsiveness for income and level of assistance concerns.

A review of the Types of Home Adaptation Required shows that the basic needs for independent living in the home may very likely exceed $1,000. Because these items do not add to the resale or assessed value of the property, the SCHIP current $1000 assistance limit may not be adequate.

Table 4 Percentage Distribution of Families and Unattached Individuals by Income Group, 1972-1975

%

	1972[1]	1973[1]	1974[1]	1975[1]	72-75 Change	1975[2]
< 5,999	35.3	31.6	26.3	24.9	-10.4	24.9
6,000 - 8,999	18.0	16.1	14.0	12.6	-5.4	12.5
9,000 - 11,999	17.9	15.7	14.3	12.1	-5.8	11.6
12,000 - 14,999	12.3	13.2	13.8	12.7	+0.4	11.5
15,000 - 19,999	10.1	13.4	16.2	17.0	+7.0	16.6
> 20,000	6.6	10.0	15.4	20.7	+14.1	22.8
Average Income	$9525	10,694	12,437	13,573		13,936
Median Income	$8493	9,441	10,993	12,106		12,582

[1] Canada

[2] Alberta

Source: Statistics Canada, Income Distributions by Size in Canada, 1974, 1975 (Preliminary Estimates)

TABLE 5: DISCUSSION OF ALTERNATE APPROACHES OF FUNDING

FUNDING MECHANISM	ADVANTAGES	DISADVANTAGES
1. Grant Program	- administration virtually set up via SCHIP, less expensive administratively - a maximum established, within which the individual is able to set priorities - method more likely to be used and obtain high visibility - relatively easy to begin in near future	- potential for inequitable distribution of funds if not based on assessment of modification needs - level of assistance may not meet all needs - the establishment of income criteria may not be realistic as no information is available to assess the actual levels
2. Loan Program	- less concern over income criteria as loan would be repayed - level of assistance could be higher - responsibility for proper use of the program and priorities rests with individual	- no mechanism within the Department to handle a system of loans and repayment - the program administration could be more expensive to handle and may require a larger budget-delay envisioned in initiating program - method may not help the most needy, even if interest rate subsidies were included
3. Grant/Loan Combination	- adds depth to level of assistance available - more responsive to needs and less concerned with income as flexibility of going both ways	- no administrative machinery existing - would require substantial administration procedures and requirements - would be expensive and delay program initation

5. Financial Implications of Alternative Levels of Funding

Table 6 costs out three levels of assistance: $1000, $2000 and $3000. A medium estimate is made using Table 2 as a basis of wheelchair users but assumes that 1/4 of the non-institutionalized wheelchair users are in adequate accommodation and would not require assistance. These figures represent maximum take-up at the levels indicated.

TABLE 6: BUDGET IMPLICATIONS FOR ALTERNATIVE LEVELS OF FUNDING ASSISTANCE

1. Assistance of $1000

	OWNERS	RENTERS	TOTAL
AGE	$000,000's	$000,000's	$000,000's
> 65	0.7	0.5	1.2
> 65	1.0	0.8	1.8
Total	1.7	1.3	3.0

2. Assistance of $2000

	OWNERS	RENTERS	TOTAL
AGE	$000,000's	$000,000's	$000,000's
> 65	1.4	1.0	2.4
> 65	2.0	1.6	3.6
Total	3.4	2.6	6.0

3. Assistance of $3000

	OWNERS	RENTERS	TOTAL
AGE	$000,000's	$000,000's	$000,000's
> 65	2.1	1.5	3.6
< 65	3.0	2.4	5.4
Total	5.1	3.9	9.0

From Table 6 a number of combinations were considered on the following basis;

- Impact by reaching owners and renters: grant only, grant plus loan,
- Impact by reaching owners only: grant only, grant plus loan,
- Impact by reviewing other assistance and differentiating program by age: senior citizens have access to SCHIP.

This review led to five program alternatives.

The financial implications of the program alternatives do not consider cost-sharing with the federal government. Social Services have been in contact with the federal government on this possibility. The federal government response indicates that they see no problem in getting a 50% federal cost share for this program, although it may be applicable only to the grant portion.

6. Program Alternatives

Table 7 summarizes the program alternatives. Note that the cost estimates are based on maximum grant/loan takeup and therefore is not an annual budget estimate. Any income maximum would reduce these estimates further.

6.1 Option 1

This option would make the program available to all age groups, regardless of tenure. The program would consist of a grant portion and a loan portion which would allow greatest flexibility in assessing need. As seniors have access to SCHIP, the maximum grant would be $1000 to seniors and $2000 for those less than 65. The program would be expensive, with up to 4.8 million for grants and up to $9 million for loans, which would be recovered. It would be more difficult to set up the administration but would be most comprehensive in meeting overall objectives.

TABLE 7: PROGRAM ALTERNATIVE

	Client Served		Method of Disbursal		Medium Cost Estimate		Advantages	Disadvantages
	Age	Tenure	Grant	Loan	Grant	Loan		
Option 1	All age groups	Owners & Renters	>65-up to $1,000 <65-up to $2,000	up to $3,000	$4.8 Million	$9 million	-More flexible to needs -Can reach all users -Can reach majority of needs -Cost recovery-less concern over income -Both seniors and <65 have up to $2,000 grant assistance	-More expensive -Grants for renters/landlords more difficult to set up and administer -Loan Administration would take time to develop through Grants Division, Treasury Branch, AHMC -Take longer to work out detail
Option 2	All age groups	Owners & Renters	>65-up to $1,000 <65-up to $2,000	owners up to $3,000	$4.8 Million	5.1 million	-Same as above but less expensive - avoids loan security for renters/ landlords	-Same as above but less assistance to renters -Fairly difficult to set up administration for Renter Grants and homeowner loans
Option 3	All age groups	Owners	>65-up to $1,000 <65-up to $2,000	up to $3,000	$2.7 Million	5.1 million	-Same as above and easier to initiate for homeowners -Grant machinery in place for owners	-May miss the most needy i.e. younger wheelchair users -Difficulty to develop loan machinery although less difficult than with renters
Option 4	All age groups	Owners & Renters	>65-up to $1,000 <65-up to $2,000	Nil	$4.8 Million	Nil	-Reaches all users to a certain extent	-Limited Flexibility -Administration required for renters -Greater chance for inequitable distribution of funds -May not meet all needs
Option 5	All age groups	Owners	>65-up to $1,000 <65-up to $2,000	Nil	$2.7 Million	Nil	-Easier to set up grant administration -Less expensive	-Not flexible -May not reach all needs -May require income criteria which may be unrealistic -May result in inequitable distribution of funds
Option 6	All age groups	Owners	up to $1,000	Nil	$1.7 Million			

1. Assumes maximum programme take-up based on a medium estimate of 3000 users. It is estimated that half of this estimate would be a reasonable initial amount for budget purposes.

6.2 Option 2

The grant stipulations in this option are the same as Option 1, but the loans portion would only be available to homeowners. This would eliminate a few of the difficulties in dealing with landlords and renters although considerable work will be required in setting up the grant machinery for renters and the loan machinery for owners. The program is relatively comprehensive and would cost up to $4.8 million in grants and up to $5.1 million in loans.

6.3 Option 3

This option limits the program to owners only which reduces the grant cost to $2.7 million and the administration problems associated with renters. It does provide for loans to homeowners which is more comprehensive for owners and which would cost up to $5.1 million.

6.4 Option 4

This option removes the loan component which reduces the potential effectiveness of the program in meeting individual requirements. An estimated maximum cost is $4.8 million in grants. An administration system handling grants for renters would be required.

6.5 Option 5

This option is less expensive and would cost up to $2.7 million in grants. It is also easy to initiate as the grant administration for owners can be adapted from SCHIP. It is not as comprehensive and there is a greater chance at an inequitable distribution of funds.

6.6 Option 6

This option is the least expensive and would cost up to $1.7 million in grants.

APPENDIX I

Table A: A Comparison of Wheelchair Utilization Rates[1]

	Source				
	U.S.[3]	Denmark[4]	Britain[5]	Canada[6]	Manitoba[7]
Rate Per 1,000	2.1	3.62	3.21	1.95	2.6
Estimate for Alberta[2]	4,200	7,240	6,420	3,900	5,200

1. Provided by Department of Social Services and Community Health.

2. Assuming an Alberta population of 2 million.

3. United States Department of Health, Education and Welfare Use of Special Aids, 1969 (data from Health Interview survey, 1969, published December 1972). Excludes the institutionalized and members of aimed forces.

4. Provided in "Saskatchewan Aids to Independent Living", (Saskatchewan Department of Public Health, Research and Planning Branch, January 1974, Updated August 1972), p. 33, (mimeographed).

5. Amelia Harris, Handicapped and Impaired in Great Britain (London: Office of Population Census and Surveys, Social Survey Dursem, 1971), p. 3.

6. Margaret Whitridge, "Easier Access for the Aged and Infirmed", Canada's Health and Welfare, p. 26 (August - September, 1971).

7. Manitoba Department of Health and Social Development, 1975 Annual Report, p. 13.

TABLE B: A Comparison of Wheelchair Users in the City of Edmonton, by Age, by Type of Dwelling

Survey and Type of Dwelling		Age									TOTAL		
		< 20			21 - 65			> 65					
		No.	% row	% column	No.	% row	% column	No.	% row	% column	No.	% row	% column
Institution	Dats	23	2	41	268	23	57	859	75	83	1150	100	74
	Census	3	1	5	131	23	42	432	76	83	566	100	63
	Total	26	2	22	399	23	51	1291	75	53	1716	100	70
Single	Dats	29	10	52	139	50	30	106	40	10	274	100	18
	Census	55	22	89	130	52	42	65	26	13	250	100	28
	Total	84	16	71	269	51	35	171	33	31	524	100	21
Apartment	Dats	4	3	6	62	46	13	68	51	7	134	100	8
	Census	4	5	6	49	65	16	23	30	4	76	100	9
	Total	8	4	7	111	53	14	91	43	16	210	100	9
Total	Dats	56	4	100	469	30	100	1033	66	100	1558	100	100
	Census	62	7	100	310	35	100	520	58	100	892	100	100
	Total	118	5	100	779	32	100	1533	63	100	2450	100	100

Notes:

1. Institution includes hospitals, auxiliary hospitals, group homes, nursing homes. It does not include senior citizen lodge or self-contained accommodation which is included under rental apartment.
2. DATS - Information provided by City of Edmonton Transportation Planning Branch on the Disabled Adults Transportation System. Statistics on DATS as of July 1976 which had 1558 wheelchair users registered. As of March 1977 there are 1672 wheelchair uses registered for DATS. The DATS information only provides service to adults greater than 16.
3. Census - Information provided by City of Edmonton Transportation Planning Branch based on the result of the 1975 City Census which identified 3585 private households in the City of Edmonton as having a disabled person residing there. The follow up questionnaire which provided more detailed information had a 36% response rate.

The use of both sources of information has been used as fairly independent measures as:

a) a match between the DATS and Census respondents was carried out and resulted in a small overlap of 90 persons. This overlap is not assumed to seriously affect the distribution of the wheelchair user.

b) there may be an understatement of the number of children identified through these surveys but it is not considered serious. As the Handicapped Children's Services estimate 100 children in wheelchairs, the 65 identified in DATS and the Census may be a reasonable estimate.

From this information a simple incidence ratio of 2500 wheelchair persons per 500,000 population was deduced. Applying this incidence ratio to Table A would give an estimate of 10,000 wheelchair users in the province, substantially higher than any other estimate. It is felt that this ratio is definitely high due to the access to institutions which are concentrated in Edmonton. Therefore, a ratio was derived for non-institutionalized persons from the Edmonton experience which is 1.5 persons per thousand. This gives an estimate of 3,000 persons in Alberta not in institutions.

Table 2 of the report uses 3,000 as a low estimate. The medium and high estimates are based on the assumption that the rate of absorbing wheelchair users into institutionalized accommodation will not keep up to the increasing use of wheelchairs, especially as persons age. Increments of 1000 were used as the annual total of wheelchairs purchased/loaned by Department of Social Services in 1975/76 were 1062. In 1978, the estimate of wheelchair users is 4000.

The City of Edmonton carried out a more intensive survey on a sample of the combined universe of DATS and the Census respondent. The results of this survey called DISABLED HOUSING SURVEY, 1977 was completed in April 1977 and provided information on age distribution,

dwelling type, and tenure and degree of renovations made. This information was used to estimate tenure and current levels of accessibility.